

§ 73.37 Requirements for physical protection of irradiated reactor fuel in transit.

(a) *Performance objectives.* (1) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a quantity of irradiated reactor fuel¹ in excess of 100 grams (0.22 lbs) in net weight of irradiated fuel, exclusive of cladding or other structural or packaging material, which has a total external radiation dose rate in excess of 1 Gy (100 rad) per hour at a distance of 1 meter (3.3 feet) from any accessible surface without intervening shielding, shall establish and maintain, or make arrangements for, and assure the proper implementation of, a physical protection system for shipments of such material that will achieve the following objectives:

- (i) Minimize the potential for theft, diversion, or radiological sabotage of spent nuclear fuel shipments; and
- (ii) Facilitate the location and recovery of spent nuclear fuel shipments that may have come under the control of unauthorized persons.

(2) To achieve these objectives, the physical protection system shall:

- (i) Provide for early detection and assessment of attempts to gain unauthorized access to, or control over, spent nuclear fuel shipments;
- (ii) Delay and impede attempts at theft, diversion, or radiological sabotage of spent nuclear fuel shipments; and
- (iii) Provide for notification to the appropriate response forces of any attempts at theft, diversion, or radiological sabotage of a spent nuclear fuel shipment.

(b) *General requirements.* To achieve the performance objectives of paragraph (a) of this section, a physical protection system established and maintained, or arranged for, by the licensee shall include the following elements:

(1) *Preplan and coordinate spent nuclear fuel shipments.* Each licensee shall:

- (i) Ensure that each armed escort, as defined in § 73.2, is instructed on the use of force sufficient to counter the

force directed at the person, including the use of deadly force when the armed escort has a reasonable belief that the use of deadly force is necessary in self-defense or in the defense of others, or any other circumstances, as authorized by applicable Federal and State laws. This deadly force training requirement does not apply to members of local law enforcement agencies (LLEAs) performing escort duties for spent nuclear fuel shipments.

(ii) Preplan and coordinate shipment itineraries to ensure that the receiver at the final delivery point is present to accept the shipment.

(iii) Ensure written certification of any transfer of custody.

(iv) Preplan and coordinate shipment information no later than 2 weeks prior to the shipment or prior to the first shipment of a series of shipments with the governor of a State, or the governor's designee, of a shipment of spent nuclear fuel through or across the boundary of the State, in order to:

(A) Minimize intermediate stops and delays;

(B) Arrange for State law enforcement escorts;

(C) Arrange for positional information sharing when requested; and

(D) Develop route information, including the identification of safe havens.

(v) Arrange with local law enforcement authorities along the shipment route, including U.S. ports where vessels carrying spent nuclear fuel shipments are docked, for their response to a security-related emergency or a call for assistance.

(vi) Preplan and coordinate with the NRC to obtain advance approval of the routes used for road and rail shipments of spent nuclear fuel, and of any U.S. ports where vessels carrying spent nuclear fuel shipments are scheduled to stop. In addition to the requirements of this section, routes used for shipping spent nuclear fuel shall comply with the applicable requirements of the DOT regulations in Title 49 of the *Code of Federal Regulations* (49 CFR), in particular those identified in § 71.5 of this chapter. The advance approval application shall provide:

(A) For road shipments, the route shall include locations of safe havens

¹For purposes of 10 CFR 73.37, the terms "irradiated reactor fuel" and "spent nuclear fuel" are used interchangeably.

that have been coordinated with the appropriate State(s).

(B) The NRC approval shall be obtained prior to the 10-day advance notification requirement in § 73.72 of this part.

(C) Information to be supplied to the NRC shall include, but is not limited to, the following:

(1) Shipper, consignee, carriers, transfer points, modes of shipment; and

(2) A statement of shipment security arrangements, including, if applicable, points where armed escorts transfer responsibility for the shipment.

(vii) Document the preplanning and coordination activities.

(viii) Ensure the protection of Safeguards Information relative to spent nuclear fuel in transit in accordance with §§ 73.21 and 73.22 of this part, especially the information described in § 73.22(a)(2), which would include, at a minimum, the protection of the following information:

(A) The preplanning and coordination activities;

(B) Transportation physical security plan;

(C) Schedules and itineraries for specific spent nuclear fuel shipments until the information is no longer controlled as Safeguards Information, that is until at least 10 days after the shipment has entered or originated within the state; or for the case of a shipment in a series of shipments whose schedules are related, a statement that schedule information must be protected until 10 days after the last shipment in the series has entered or originated within the state and an estimate of the date on which the last shipment in the series will enter or originate within the state;

(D) Vehicle immobilization features, intrusion alarm devices, and communications;

(E) Arrangements with and capabilities of local police response forces, and locations of safe havens identified along the transportation route;

(F) Limitations of communications during transport;

(G) Procedures for response to security contingency events;

(H) Information concerning the tactics and capabilities required to defend against attempted sabotage, or theft

and diversion of irradiated reactor fuel, or related information; and

(I) Engineering or safety analyses, security-related procedures or scenarios and other information related to the protection of the transported material if the unauthorized disclosure of such analyses, procedures, scenarios, or other information could reasonably be expected to have a significant adverse effect on the health and safety of the public or the common defense and security by significantly increasing the likelihood of theft, diversion, or sabotage of spent nuclear fuel in transit.

(2) *Advance notifications.* Prior to the shipment of spent nuclear fuel moving through or across the boundary of any State, outside the confines of the licensee's facility or other place of use or storage, a licensee subject to this section shall provide notification to the NRC, under § 73.72 of this part, and the governor of the State(s), or the governor's designee(s), of the spent nuclear fuel shipment. After June 11, 2013, the compliance date of the Tribal notification final rule, a licensee subject to this section shall notify the Tribal official or Tribal official's designee of each participating Tribe referenced in § 71.97(c)(3) of this chapter prior to the transport of spent fuel within or across the Tribal reservation. Contact information for each State, including telephone and mailing addresses of governors and governors' designees, and participating Tribes, including telephone and mailing addresses of Tribal officials and Tribal official's designees, is available on the NRC Web site at: <https://scp.nrc.gov/special/designee.pdf>.

A list of the contact information is also available upon request from the Director, Division of Material Safety, State, Tribal, and Rulemaking Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555. The licensee shall comply with the following criteria in regard to each notification:

(i) *Procedures for submitting advance notification.* (A) The notification must be in writing and sent to the office of each appropriate governor or the governor's designee and each appropriate Tribal official or the Tribal official's designee.

(B) A notification delivered by mail must be postmarked at least 10 days

before transport of a shipment within or through the State or Tribal reservation.

(C) A notification delivered by any other method must reach the office of the governor or the governor's designee and any Tribal official or Tribal official's designee at least 7 days before transport of a shipment within or through the State.

(ii) *Information to be furnished in advance notification of shipment.* The notification must include the following information:

(A) The name, address, and telephone number of the shipper, carrier and receiver of the shipment and the license number of the shipper and receiver;

(B) A description of the shipment as specified by DOT in 49 CFR 172.202 and 172.203(d); and

(C) A listing of the routes to be used within the State or Tribal reservation.

(iii) *Separate enclosure.* The licensee shall provide the following information, under § 73.22(f)(1), in a separate enclosure to the written notification:

(A) The estimated date and time of departure from the point of origin of the shipment;

(B) The estimated date and time of entry into the State or Tribal reservation;

(C) The estimated date and time of arrival of the shipment at the destination;

(D) For the case of a single shipment whose schedule is not related to the schedule of any subsequent shipment, a statement that schedule information must be protected under the provisions of §§ 73.21 and 73.22 until at least 10 days after the shipment has entered or originated within the State or Tribal reservation; and

(E) For the case of a shipment in a series of shipments whose schedules are related, a statement that schedule information must be protected under the provisions of §§ 73.21 and 73.22 of this part until 10 days after the last shipment in the series has entered or originated within the State or Tribal reservation, and an estimate of the date on which the last shipment in the series will enter or originate within the State or Tribal reservation.

(iv) *Revision notice.* A licensee shall notify by telephone a responsible indi-

vidual in the office of the governor or in the office of the governor's designee and the office of the Tribal official or in the office of the Tribal official's designee of any schedule change that differs by more than 6 hours from the schedule information previously furnished under paragraph (b)(2)(iii) of this section, and shall inform that individual of the number of hours of advance or delay relative to the written schedule information previously furnished.

(v) *Cancellation notice.* Each licensee who cancels a shipment for which advance notification has been sent shall send a cancellation notice to the governor or to the governor's designee of each State previously notified, each Tribal official or the Tribal official's designee previously notified, and to the NRC's Director, Division of Security Policy, Office of Nuclear Security and Incident Response, U.S. Nuclear Regulatory Commission, Washington, DC 20555. The licensee shall state in the notice that it is a cancellation and identify the advance notification that is being canceled.

(vi) *Records.* The licensee shall retain a copy of the preplanning and coordination activities, advance notification, and any revision or cancellation notice as a record for 3 years under § 73.70 of this part.

(3) *Transportation physical protection program.* (i) The transportation physical protection program established under paragraph (a)(1) of this section shall include armed escorts to protect spent nuclear fuel shipments and a movement control center, as defined in § 73.2 of this part, staffed and equipped to monitor and control spent nuclear fuel shipments, to communicate with local law enforcement authorities, and to respond to safeguards contingencies.

(ii) The movement control center must be staffed continuously by at least one individual who will actively monitor the progress of the spent nuclear fuel shipment and who has the authority to coordinate the physical protection activities.

(iii) The movement control center personnel must monitor the shipment continuously, *i.e.*, 24-hours per day, from the time the shipment commences, or if delivered to a carrier for

transport, from the time of delivery of the shipment to the carrier, until safe delivery of the shipment at its final destination, and must immediately notify the appropriate agencies in the event of a safeguards event under the provisions of § 73.71 of this part.

(iv) The movement control center personnel and the armed escorts must maintain a written log for each spent nuclear fuel shipment, which will include information describing the shipment and significant events that occur during the shipment. The log must be available for review by authorized NRC personnel for a period of at least 3 years following completion of the shipment.

(v) The licensee shall develop, maintain, revise and implement written transportation physical protection procedures which address the following:

(A) Access controls to ensure no unauthorized persons have access to the shipment and Safeguards Information;

(B) Roles and responsibilities of the movement control center personnel, drivers, armed escorts and other individuals relative to the security of the shipment;

(C) Reporting of safeguards events under § 73.71 of this part;

(D) Communications protocols that include a strategy for the use of authentication and duress codes, the management of refueling or other stops, detours, and the loss of communications, temporarily or otherwise; and

(E) Normal conditions operating procedures.

(vi) The licensee shall retain as a record the transportation physical protection procedures for 3 years after the close of period for which the licensee possesses the spent nuclear fuel.

(vii) The transportation physical protection program shall:

(A) Provide that escorts (other than members of local law enforcement agencies serving as armed escorts, or ship's officers serving as unarmed escorts) have successfully completed the training required by appendix D of this part, including the equivalent of the weapons training and qualifications program required of guards, as described in sections III and IV of appendix B of this part, to assure that each

such individual is fully qualified to use the assigned weapons;

(B) Provide that shipment escorts communicate with the movement control center at random intervals, not to exceed 2 hours, to advise of the status of the shipment for road and rail shipments, and for sea shipments while shipment vessels are docked at U.S. ports; and

(C) Provide that at least one armed escort remains alert at all times, maintains constant visual surveillance of the shipment, and periodically reports to the movement control center at regular intervals not to exceed 30 minutes during periods when the shipment vehicle is stopped, or the shipment vessel is docked.

(4) *Contingency and response procedures.* (i) In addition to the procedures established under paragraph (b)(3)(v) of this section, the licensee shall establish, maintain, and follow written contingency and response procedures to address threats, thefts, and radiological sabotage related to spent nuclear fuel in transit.

(ii) The licensee shall ensure that personnel associated with the shipment shall be appropriately trained regarding contingency and response procedures.

(iii) The licensee shall retain the contingency and response procedures as a record for 3 years after the close of period for which the licensee possesses the spent nuclear fuel.

(iv) The contingency and response procedures must direct that, upon detection of the abnormal presence of unauthorized persons, vehicles, or vessels in the vicinity of a spent nuclear fuel shipment or upon detection of a deliberately induced situation that has the potential for damaging a spent nuclear fuel shipment, the armed escort will:

(A) Determine whether or not a threat exists;

(B) Assess the extent of the threat, if any;

(C) Implement the procedures developed under paragraph (b)(4)(i) of this section;

(D) Take the necessary steps to delay or impede threats, thefts, or radiological sabotage of spent nuclear fuel; and

(E) Inform local law enforcement agencies of the threat and request assistance without delay, but not to exceed 15 minutes after discovery.

(c) *Shipments by road.* In addition to the provisions of paragraph (b) of this section, the physical protection system for any portion of a spent nuclear fuel shipment by road shall provide that:

(1) The transport vehicle is:

(i) Occupied by at least two individuals, one of whom serves as an armed escort, and escorted by an armed member of the local law enforcement agency in a mobile unit of such agency; or

(ii) Led by a separate vehicle occupied by at least one armed escort, and trailed by a third vehicle occupied by at least one armed escort.

(2) As permitted by law, all armed escorts are equipped with a minimum of two weapons. This requirement does not apply to local law enforcement agency personnel who are performing escort duties.

(3) The transport vehicle and each escort vehicle are equipped with redundant communication abilities that provide 2-way communications between the transport vehicle, the escort vehicle(s), the movement control center, local law enforcement agencies, and one another. To ensure that 2-way communication is possible at all times, alternate communications should not be subject to the same failure modes as the primary communication.

(4) The transport vehicle is equipped with NRC-approved features that permit immobilization of the cab or cargo-carrying portion of the vehicle.

(5) The transport vehicle driver has been familiarized with, and is capable of implementing, transport vehicle immobilization, communications, and other security procedures.

(6) Shipments are continuously and actively monitored by a telemetric position monitoring system or an alternative tracking system reporting to a movement control center. A movement control center shall provide positive confirmation of the location, status, and control over the shipment. The movement control center shall implement preplanned procedures in response to deviations from the authorized route or a notification of actual, attempted, or suspicious activities re-

lated to the theft, loss, diversion, or radiological sabotage of a shipment. These procedures shall include, but not be limited to, the identification of and contact information for the appropriate local law enforcement agency along the shipment route.

(d) *Shipments by rail.* In addition to the provisions of paragraph (b) of this section, the physical protection system for any portion of a spent nuclear fuel shipment by rail shall provide that:

(1) A shipment car is accompanied by two armed escorts (who may be members of a local law enforcement agency), at least one of whom is stationed at a location on the train that will permit observation of the shipment car while in motion.

(2) As permitted by law, all armed escorts are equipped with a minimum of two weapons. This requirement does not apply to local law enforcement agency personnel who are performing escort duties.

(3) The train operator(s) and each escort are equipped with redundant communication abilities that provide 2-way communications between the transport, the escort vehicle(s), the movement control center, local law enforcement agencies, and one another. To ensure that 2-way communication is possible at all times, alternate communications should not be subject to the same failure modes as the primary communication.

(4) Rail shipments are monitored by a telemetric position monitoring system or an alternative tracking system reporting to the licensee, third-party, or railroad movement control center. The movement control center shall provide positive confirmation of the location of the shipment and its status. The movement control center shall implement preplanned procedures in response to deviations from the authorized route or to a notification of actual, attempted, or suspicious activities related to the theft, diversion, or radiological sabotage of a shipment. These procedures shall include, but not be limited to, the identification of and contact information for the appropriate local law enforcement agency along the shipment route.

(e) *Shipments by U.S. waters.* In addition to the provisions of paragraph (b)

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of this section, the physical protection system for any portion of a spent nuclear fuel shipment traveling on U.S. waters shall provide that:

(1) A shipment vessel while docked at a U.S. port is protected by:

(i) Two armed escorts stationed on board the shipment vessel, or stationed on the dock at a location that will permit observation of the shipment vessel; or

(ii) A member of a local law enforcement agency, equipped with normal local law enforcement agency radio communications, who is stationed on board the shipment vessel, or on the dock at a location that will permit observation of the shipment vessel.

(2) As permitted by law, all armed escorts are equipped with a minimum of two weapons. This requirement does not apply to local law enforcement agency personnel who are performing escort duties.

(3) A shipment vessel while within U.S. territorial waters shall be accompanied by an individual, who may be an officer of the shipment vessel's crew, who will assure that the shipment is unloaded only as authorized by the licensee.

(4) Each armed escort is equipped with redundant communication abilities that provide 2-way communications between the vessel, the movement control center, local law enforcement agencies, and one another. To ensure that 2-way communication is possible at all times, alternate communications should not be subject to the same failure modes as the primary communication.

(f) *Investigations.* Each licensee who makes arrangements for the shipment of spent nuclear fuel shall immediately conduct an investigation, in coordination with the receiving licensee, of any shipment that is lost or unaccounted for after the designated no-later-than arrival time in the advance notification.

(g) State officials, State employees, Tribal officials, Tribal employees, and other individuals, whether or not licensees of the NRC, who receive information of the kind specified in paragraph (b)(2)(iii) of this section and any other Safeguards Information as defined in § 73.22(a) of this part shall pro-

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tect that information against unauthorized disclosure as specified in §§ 73.21 and 73.22 of this part.

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§ 73.38 Personnel access authorization requirements for irradiated reactor fuel in transit.

(a) *General.* (1) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a quantity of spent nuclear fuel as described in § 73.37(a)(1) of this part shall comply with the requirements of this section, as appropriate, before any spent nuclear fuel is transported or delivered to a carrier for transport.

(2) Each licensee shall establish, implement, and maintain its access authorization program under the requirements of this section.

(i) Each licensee shall be responsible for the continuing effectiveness of the access authorization program.

(ii) Each licensee shall ensure that the access authorization program is reviewed at an appropriate frequency to confirm compliance with the requirements of this section and that prompt comprehensive actions are taken to correct any noncompliance that is identified.

(iii) The review shall evaluate all program performance objectives and requirements.

(iv) Each review report must document conditions that are adverse to the proper performance of the access authorization program, the cause of the condition(s), and when appropriate, recommended corrective actions, and corrective actions taken. The licensee shall review the audit findings and take any additional corrective actions necessary to preclude repetition of the condition, including reassessment of the deficient areas where indicated.

(3) By August 19, 2013, each licensee that is subject to this provision shall implement the requirements of this section through revisions to its physical security plan or transportation security plan.

(b) *General performance objective.* The licensee's access authorization program must ensure that the individuals